



FIG. 3.—Barograph traces from selected stations, Dec. 1-2, 1921.

The official in charge of the Weather Bureau office at Roseburg reports that wild geese were heard all night on November 30–December 1, going south, and apparently flying low.

Table I gives some of the more important weather data for the period under discussion.

TABLE 1.—Meteorological data for various stations, Nov. 19–22 and Dec. 1–3, 1921.

	Tatoosh Island, Wash.	Seattle, Wash.	North Head, Wash.	S'pokane, Wash.	Walla Walla, Wash.	Lewiston, Idaho.	Boise, Idaho.	Baker, Ore.	Roseburg, Ore.	Portland, Ore.
Greatest precipitation in 24 hours, Nov. 19–22.....	2.61	1.57	1.51	0.16	1.21	0.88	*1.00	1.08	2.09	*4.43
Total snowfall Nov. 19–22.....	T.	7.3	0	7.4	*19.9	*15.9	0.4	6.3	0	0
Lowest sea-level pressure, Dec. 1.....	29.43	29.26	29.40	29.33	29.38	29.41	29.42	29.40	29.22	
Highest sea-level pressure, Dec. 2–3.....	30.78	30.83	30.76	30.79	30.78	30.84	30.79	30.83	30.74	30.77
Maximum velocity of wind, Dec. 1–2.....	56	39	90	29	27	31	31	24	40	24

\*Greatest on record for November.

†Highest on record.

551.515 (767)

## THE CLARKEDALE, ARK., TORNADO OF DECEMBER 23, 1921.

By J. H. SCOTT, Meteorologist.

[Weather Bureau, Memphis, Tenn., Jan. 12, 1922.]

The tornado developed very near the center of a narrow but rather intense troughlike depression between areas of high pressure which crested over the Dakotas and off the South Atlantic coast, respectively, the one over the Dakotas being of the greater intensity.

The temperature was above 70° F. and the atmosphere was rather oppressive, the highest temperature of the month occurring at Memphis on that day; the temperature gradient to the northwest was rather steep. The day was cloudy, with strato-cumulus and stratus from the south and southwest, moving with the wind at the surface. There had been no rain at Memphis, aside from a trace in the early morning, and none fell at Memphis during the storm, though a heavy downpour occurred along the storm track coincident with or immediately following the storm, which was accompanied with lightning and thunder. The lightning was visible in Memphis, but no thunder was heard. Although the storm passed within less than 20 miles of Memphis, it produced no appreciable effect on the pressure, temperature, or wind at the latter place.

The tornado apparently originated 5 or 6 miles southwest of Clarkedale, Ark., but did not attain greatly destructive force until it struck the Booker farm, some 2 miles from Clarkedale, where several buildings were wrecked and two persons were killed. Continuing its northeastward course, the tornado struck the town of Clarkedale squarely, wrecking the majority of the buildings, including the large brick plantation store of Banks & Danner, where 40 or 50 persons were doing their Christmas shopping or had taken refuge from the advancing storm. One white and three colored men lost their lives in the collapse of this building. The total death list from the storm was 6, while the seriously injured numbered about 15. Besides the plantation store, a large cotton gin, several warehouses, a number of substantial residences, and 40 or more plantation cabins were wrecked. The cabins were of frail construction,

and though most of them were occupied there was no loss of life in their destruction. Fortunately the cotton gin was not in operation that day; if it had been, the loss of life would probably have been considerably greater.

The tornado apparently lifted at the Mississippi levee, about 15 miles from its point of origin, but descended again in Tipton County, Tenn., doing more or less property damage in the vicinity of Phelan, a village 10 or 12 miles southeast of Covington, where two persons were slightly injured in the collapse of a brick store building.

The tornado struck Clarkedale at about 4 p. m. and Phelan near 5.15 p. m., indicating a velocity of translation of about 35 miles per hour a little east of northeast. Its destructive path averaged about 500 feet in width and was clearly marked on both edges. Most observers noted a funnel-shaped cloud of greenish appearance; also the roar characteristic of tornadoes. The position of the debris also indicated rotary motion, though not in a very marked degree.

The property damage in Arkansas has been estimated at \$150,000, while in Tennessee it will hardly exceed \$20,000.

#### TORNADO OF DECEMBER 24, 1921, IN NORTHEASTERN LOUISIANA.

By RAY A. DYKE, Meteorologist.

[Weather Bureau Office, New Orleans, La., Jan. 24, 1922.]

A tornado occurred between 12:10 a. m. and 1 a. m. on December 24, 1921, in Union and Morehouse Parishes in northeastern Louisiana, over a path 25 miles long and of average width about 200 yards, the direction of movement being east-northeast. This was one of a number of tornadoes that occurred during the same night in the lower Mississippi Valley. The 8 p. m. weather map of

December 23 showed a well defined, long, narrow trough of low atmospheric pressure over the Ohio Valley, Arkansas, northern Mississippi, northwestern Louisiana, and eastern Texas, with temperatures in the trough ranging from 68 to 72 except in the Ohio Valley. With these conditions the shift of the wind to the west and northwest, bringing air 30° to 35° colder, should have taken place at or near the time of the occurrence of the tornadoes.

The tornado in Louisiana appears to have originated just southwest of Spencer, a village which was in the path of the storm and suffered great damage. One man was killed and many persons suffered injury. A baby was blown 150 yards from the Eckhoff home but was not hurt, although the father was killed. Nearly all the buildings in the place, including some substantial stores, a railroad station, and several houses, were destroyed. Twenty box cars were demolished. The postmaster at Spencer states that the lumber from houses was picked up as far as 11 miles away and merchandise was blown 3 miles from the village.

The northeastward movement of the tornado was marked by much damage to standing timber in Union and Morehouse Parishes, by the topping and blowing down of trees. This damage is estimated at several million feet. Crossing Bayou Bartholomew, the tornado struck the Tisdale farm, scattered every house in its trail, and killed one woman and broke her daughter's back, both being blown 300 yards against a tree. The storm then passed through a tract of woods and struck the Shelton Place farm, scattered every house in its path as before, razed the Gullege sawmill, and passing on, caused damage to cabins, and disappearing near Gallion.

Notwithstanding the destruction of numerous dwellings while the occupants were in bed, only two deaths were caused by the storm. The property damage is conservatively estimated at \$60,000.